4.1.5 Air Pollutant Impacts

As part of the PSD permit application, air-dispersion modeling was performed to demonstrate that the emissions from the facility will not cause or contribute to a violation of an ambient air quality standard or PSD increment. Modeling was performed using a modeling protocol that conforms to U.S. Environmental Protection Agency (EPA) standards to predict the maximum ambient concentrations of NO_2, and CO.

Increment Modeling

PSD increments have been established for NO_2, SO_2, and PM_{10} to prevent degradation to air quality by limiting the cumulative change in ambient concentrations that can occur due to construction or modification of facilities in the region after the specific baseline date for each pollutant.

Xcel Energy performed increment modeling for NO_2 to demonstrate that the combustion turbines and duct burners are eligible for designation as "Clean Units." The MPCA identified the District Energy facility as the only other facility that needs to be included in the analysis if increment modeling for NO_2 is required to obtain Clean Unit Designation for emissions of NO_x.

NAAQS Modeling

Xcel Energy sources were modeled to determine compliance with the National and Minnesota Ambient Air Quality Standards (NAAQS and MAAQS). MPCA guidance was relied upon to determine the appropriate background concentrations for NO_2 and CO.

A complete modeling report was submitted as part of the PSD permit application. The PSD permit application will be reviewed by the MPCA and will be placed on public notice in accordance with the requirements of the application process.

Modeling Results

The modeling results summarized in Table 4-2a demonstrates the ambient air concentrations of NO_2 and CO resulting from emissions from the proposed generation Plant, together with emissions from other regional emission sources, comply with the corresponding standards.

Table 4-2a Predicted Ambient Air Concentrations

Pollutant	Standard/ Averaging Period	Modeled Concentration (micrograms per cubic meter)	Background Concentration (micrograms per cubic meter)	Total Concentration (micrograms per cubic meter)	Standard (micrograms per cubic meter)
CO	NAAQS 1-hr	8,529.8	7,117	15,646.8	40,000
CO	NAAQS 8-hr	1,009.7	4,344	5,353.7	10,000
NO_2	NAAQS Annual	35.9 [a]	32	67.9	100
NO_2	PSD Increment/ Annual	21.3 [b]	NA	21.3	25

[a] Modeled NO_2 concentration for NAAQS compliance demonstration includes contributions from District Energy and Xcel Energy's High Bridge, A.S. King, Riverside, Sherco, and Black Dog Generating Plants.

[b] Modeled NO_2 concentration for PSD increment compliance demonstration includes contributions from District Energy Boiler No. 7.